DOCUMENT RESUME

ED 140 955 PS 009 335

AUTHOR Wilson, Ann L.
TITLE A Predictive Analysis of Early Parental Attachment Behavior.
PUB DATE Mar 77
NOTE 11p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (New Orleans, Louisiana, March 17-20, 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Attachment Behavior; *Birth; Fathers; *Mothers; *Neonates; Observation; *Parent Attitudes; *Parent Child Relationship; *Predictor Variables; Research
IDENTIFIERS Brazelton Neonatal Assessment Scale; Rooming In

ABSTRACT

In this study of 40 primaparous mothers (15 to 36 years of age) and their newborns the significance of predictors of maternal responsiveness was assessed immediately following birth in the delivery room and at feedings 2-3 days and 4 weeks following delivery. The variables used as predictors included the mothers' age and background, prenatal factors, the fathers' presence and responsiveness in the delivery room and neonatal characteristics as assessed by the Brazelton Neonatal Assessment Scale. The variables derived from data collected prenatally and in the immediate postpartum period were added to the analysis as they were generated. Results indicate that the father's responsiveness in the delivery room significantly predicts the mother's responsiveness immediately following birth, and that the mother's behavior at this time predicts her responsiveness during a hospital feeding. Age as a continuous variable and the choice to have a rooming-in arrangement in the hospital significantly predicts maternal responsiveness as it was assessed 4 weeks following delivery. The variance in the predictive significance of the variables at the immediate and 4-week postpartum observation is discussed as evidence of predisposition for positive maternal behavior. Also discussed is how these findings support the Sensitive Period Hypothesis which emphasizes the importance of the amount of contact time a mother has with her infant for the development of a positive attachment. (Author/MS)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED140955

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

A PREDICTIVE ANALYSIS OF EARLY PARENTAL ATTACHMENT BEHAVIOR

Ann L. Wilson, Ph.D.
Department of Pediatrics and Adolescent Medicine
University of South Dakota School of Medicine
Sioux Valley Hospital
Sioux Falls, South Dakota 57105

Paper presented at the biennial meeting of the Society for Research in Child Development, New Orleans, LA, 1977.

PS 009335

It is a well accepted fact that the process of attachment is essential for human development. Until recently, the study of attachment has focused upon how a child begins to develop a unique and exclusive emotional relationship with his primary caregivers. Currently, research efforts have begun to explore the question of how parents become attached to their newborn infant. From both of these perspectives, knowledge about the antecedents of this process could be useful in providing care for new parents and their newborns

A central quality of attachment is maternal responsiveness. Studies have measured maternal responsiveness to assess a mother's attachment to her newborn (Kennell et al., 1974) and the quality of an infant's attachment to his or her mother (Ainsworth and Bell, 1969). Perinatal observations of maternal responsiveness could provide valuable information for assessing the potential nature of a parent-child relationship. As the period of time immediately following birth has been identified as a "Sensitive Period" for maternal attachment (Klaus et al., 1972), observations of responsive behavior at this time may be of unique predictive value.

It is the purpose of this study to examine the significance of predictors of maternal and neonatal responsive behavior. Maternal behavior was observed in the delivery room and during feedings at three days and at four weeks following delivery. The newborns' interactive behavior was also assessed two days following birth. These observations combined with background from the mothers were used to predict maternal responsiveness observed during the postpartum period and at four weeks following delivery.

METHOD

Sample. Forty primiparous mothers and their newborns served as subjects for this study. The mothers were cared for by either a private practice of obstetricians or a publically funded clinic and all subjects were residing in the metropolitan area of Lansing, Michigan. The mothers' mean age was 22.4 years with a range of ages from 15 to 36 years. Seven of the 40 mothers were not married at the time of delivery. The sample was heterogeneous in its racial and socioeconomic status composition. All mothers received minimum amounts of medication during labor and all were judged as being alert immediately prior to and following delivery. Seventy-five percent of the fathers were present in the delivery room. Forty-five percent of the mothers breast-fed their newborns. The newborns were all vaginally delivered and had Apgar Scores of at least 8 at 5 minutes. All newborn subjects were judged clinically normal and full term at birth and their mean birth weight was 7 pounds 4 ounces (SD = 13.9 oz).

Design. A prospective repeated measures design was employed in this research. An outline of the protocal for the data collection is presented in Figure 1. Data were collected at three points in time; during the mother's third trimester of pregnancy, during the mother and the newborn's postpartum hospital stay and at four weeks following delivery.

Procedure.

Prenatal Measures - After the mothers agreed to participate in this study, information was gather on their background and their planning for prenatal and hospital care.

Hospital Measures - Three observational measures were made during the mother and baby's hospital stay. These observations were made using rating scales and they assessed both the mother's and the infant's behavior.

1. A Delivery Room Observation Scale was developed for the study to assess a woman's immediate response to her newborn. The items on this scale included the following behaviors:

- Response to baby's sex
- Immediate attempt to reach baby
- Visual tracking of baby
- Questions asked regarding physical status of baby
- Comments made about baby
- Distal looking at baby --quality
- Distal looking at baby--quantity
- Proximal touching of baby
- Talking to baby
- Use of pronouns
- Focus of attention
- General tone of affectual response

Each of the scale items is rated on a 4-point scale measuring the degree of responsiveness which the mother expresses in her behavior to her newborn. The total of the individual scores on each scale item was used as a measure of maternal responsiveness in the delivery room.

2. The Brazelton Neonatal Assessment Scale (1973) was administered to each of the newborns two days following birth. This scale assesses the newborn's interactive behavior and provides a measure of the infants' potential effect on those who care for him. Four conceptual dimensions were used to summarize the observations made with this scale. They are:

- Interactive processes: The infant's capacity to respond to social or potentially social stimuli, especially during the alert state, is assessed by the scale items which evaluate the infant's ability to orient, to cuddle, and to be consoled.

- Motor processes: The infant's ability to maintain adequate tone, to control motor behavior and to perform integrated motor actions is evaluated by the scale items which include assessments of motor tone, activity, hand-to-mouth, defensive reactions, motor maturity, pull-to-sit, and reflexes.

- Organizational processes- State Control: The infant's ability to organize his states and to habituate to stimuli are assessed using the scale items which evaluate rapidity of build up, peak of excitement, irritability, self-quieting and state lability.

- Organizational processes - Physiological response to stress: The infant's reaction to stress is assessed using the items which assess tremulousness, startles, and skin color lability.

3. Feeding observations were made to assess the mothers' responsiveness during this routine caregiving activity. The scale used was developed by Osofsky and Danzger (1974). The feeding observations were made by two trained observers who had established a .90 interrater reliability. The mothers were observed three days following delivery after they had fed their infants at least four times. The observation scale included discrete measures to assess the following maternal behaviors:

- Attentiveness and general sensitivity to the infant's state and sucking behavior.
- Quality and frequency of auditory stimulation
- Quality and frequency of visual stimulation (eye contact)
- Head and facial movements
- Quality and quantity of tactile stimulation
- Position in which infant is held

Four Weeks Post-Partum Measures - A second Feeding Observation was made at four weeks postpartum to reassess maternal responsiveness. The same rating scale was employed to make these observations.

RESULTS

A Stepwise multiple regression analysis was employed to assess the significance of the variables used to predict maternal responsiveness. The stepwise regression analysis of the variables which predict maternal responsiveness in the delivery room is presented in Table 1. The two significant predictors of the mother's responsiveness in the delivery room were the father's general responsiveness in the delivery room and the mother's desire expressed prenatally to room-in.

The analysis of which variables predict maternal responsiveness during a feeding three days following delivery is presented in Table 2. At this observation the variable maternal responsiveness in the delivery room significantly predicts maternal responsiveness during a hospital feeding.

In addition, maternal background variables predicted neonatal behavior. Table 3 presents the background variables which significantly predict the newborns' interactive processes as they were assessed by the Brazelton Neonatal Assessment Scale. The age of the mother is shown to be significantly predictive of this neonatal behavioral characteristic. The older the mother, the more positive were her infant's interactive behaviors.

Table 5 presents the variables which significantly predict the final dependent variable, maternal responsiveness during a feeding four weeks following delivery. At this point in time, the stepwise multiple regression analysis reveals that the mother's age and her choice of room-in combine to account for .51 of the variability of the mother's responsiveness to her newborn during a feeding four weeks following delivery.

To summarize the results there was a shift at four weeks postpartum in the relative significance of the predictive variables for maternal responsiveness. In the hospital the mother's responsive behavior was predicted by the father's behavior in the delivery room and by her own behavior at the time of delivery. These variables became decreasingly powerful at four weeks postpartum. At this later point in time the mother's age and choice of rooming-in predicted her responsive behavior during a feeding.

DISCUSSION

The attenuation of the predictive power of the early observations of maternal behavior may be explained by the ultimately more powerful determinant age of the mother. Older mothers may have greater emotional stability and have a better developed capacity to provide nurturant care to a dependent infant. To date this is unknown because few studies have addressed how child rearing practices are related to maternal age (Williams, 1974). Outcome data are available, however, which indicate that children of teenage parents have more educational deficits and psychopathological symptoms than do children of older parents (Oppel and Royston, 1971).

The predictive significance of the variable rooming-in may be interpreted in terms of the"Sensitive Period Hypothesis"and studies which indicate that additional hours of contact time between mothers and newborns may have a positive effect upon attachment behavior (Kennell etal., 1974). The desire to have optimal contact with their newborn expressed in the choice of room-in and the experience of that contact time may have enhanced the mothers' responsiveness as it was assessed four weeks following delivery.

The combination of the variables age and rooming-in can be considered together as factors predisposing a mother to positive nurturant care giving. Moss and Robson (1968) have noted that a pregnant woman's expressions of interest in her yet unborn child is positively related to the amount of later mutual face to face gazing. This study supports these findings. Additionally this study shows that the age of the mother predicts the capability of the newborn's interactive processes as well as the mother's responsive behavior.

In summary, these findings indicate that maternal age and rooming-in are the most powerful predictors of maternal responsiveness four weeks following delivery. It is proposed that these variables may represent a predisposition for positive maternal care that becomes manifest in the parenting relationship. These findings may be useful in interpreting behavior of mothers and newborns during the perinatal period in order to support the emergence of a positive relationship.

REFERENCES

Ainsworth, M., & Bell, S. Some contemporary patterns of mother-infant interaction in the feeding situation. In A. Ambrose (Ed.) Simulation in early infancy. London: Academic Press, 1969.

Brazelton, T. B. Neonatal Behavioral Assessment Scale. Philadelphia: J. B. Lippincott Co., 1973 (b)

Kennell, J. H., Jerauld, R., Wolfe, H., Chesler, D., Kreger, N. C., McAlpine, W., Steffa, M., and Klaus, M. H. Maternal behavior one year after early and extended postpartum contact. Dev. Med. Child Neurol., 1974, 16, 172-179.

Klaus, M., Jerauld, R., Kreger, N., McAlpine, W. Steffa, M., & Kennell, J. Maternal attachment. New England Journal of Medicine, 1972, 286, 460-463.

Moss, H. A., & Robson, J. S. Maternal influences in early social visual behavior. Child Development, 1968, 39, 401-408.

Oppel, W. C. & Royston, A. B. Teen-age births: some social, psychological, and physical sequelae. American Journal of Public Health, 1971, 751-6.

Osofsky, J., & Danzger, B. Relationships between neonatal characteristics and mother-infant interaction. Human Development, 1974, 10, 124-130.

Williams, T. Infant care: Abstracts of literature. Washington D.C.: Consortium on early childbearing and childrearing, Child Welfare League of America, 1974.

Figure 1

PROTOCOL FOR DATA COLLECTION

3rd Trimester Pregnancy	Hospital	4 Weeks Postpartum
1. Background Information 2. Survey on Bringing Up Children (Schneider, Hoffmeister, Helfer, 1976)	1. Delivery Room Observation Scale 2. Feeding Observation Scale (Osofsky & Danzger, 1974) 3. Brazelton Neonatal Assessment Scale. (1974)	1. Feeding Observation Scale (Osofsky & Danzger, 1974)

Table 1

Stepwise multiple Regression Analysis Predicting Maternal Responsiveness in Delivery Room

Variables	R^2	Beta	Standard Error of Beta	Cumulative Probability
Fathers' responsiveness in delivery room	.1836	.4974	1.288	.006**
Choice of rooming-in	.2830	7.573	3.603	.002*
Planning of pregnancy	.3384	7.785	3.797	.002

*stepwise $p < .05$
**stepwise $p < .01$

Table 2

Stepwise Multiple Regression Analysis Predicting Maternal Responsiveness During Hospital Feeding

Variables	R^2	Beta	Standard Error of Beta	Cumulative Probability
Total score of maternal responsiveness in the delivery room	.2228	.2210	.1454	.002*
Length of marriage	.2916	.2281	1.308	.002
Choice of rooming-in	.3181	1.920	3.101	.003
Age	.3345	.8456	.4842	.006

*stepwise $p < .01$

Table 3

Stepwise Multiple Regression Analysis Predicting Newborn Interactive Processes

Variables	R^2	Beta	Standard Error of Beta	Cumulative Probability
Age	.1214	.0762	.0307	.028*
Length of marriage	.1712	-.1712	.1107	.031
Planning of pregnancy	.1918	.2082	.2179	.051

*stepwise $p < .05$

Table 4

Stepwise Multiple Regression Analysis Predicting Maternal Responsiveness During Feeding Four Weeks Following Delivery

Variables	R^2	Beta	Standard Error of Beta	Cumulative Probability
Age	.3876	-.0738	.5036	.000*
Choice of rooming-in	.5127	7.672	3.148	.001*
Maternal responsiveness during a feeding	.5463	.4784	.1751	.000
Discrepancy between actual and desired sex of newborn	.5754	4.283	2.442	.000
Income	.6066	1.891	1.889	.000
Newborn interactive processes	.6399	3.025	1.889	.000

*stepwise $p < .01$